

CLAIMS

- 1 An antimicrobial protein having substantially  
5 the amino acid sequence shown in Figures 27 to  
29 or in Figure 32.
- 2 A protein as claimed in claim 1 which is an  
oligomer and which comprises at least one  
10 polypeptide having substantially the amino  
acid sequence shown in Figures 27 to 29 or  
in Figure 32.
- 3 A protein as claimed in claim 1 or claim 2  
15 which is capable of being isolated from a  
plant seed.
- 4 A protein as claimed in claim 3 which is  
capable of being isolated from a seed of the  
20 family Brassicaceae or of the family  
Compositae or of the family Leguminosae.
- 5 A protein as claimed in claim 4 which is  
isolated from Raphanus, Brassica, Sinapis,  
25 Arabidopsis, Dahlia, Cnicus, Lathyrus or  
Clitoria.
- 6 A pure protein Rs-AFP1, capable of being  
isolated from Raphanus seed.
- 30 7 A pure protein Rs-AFP2, capable of being  
isolated from Raphanus seed.

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- 8 A pure protein Rs-nslTP, capable of being isolated from Raphanus seed.
- 5 9 Pure proteins Bn-AFP1, Bn-AFP2, Br-AFP1 and Br-AFP2, capable of being isolated from Brassica seed.
- 10 10 Pure proteins Sa-AFP1 and Sa-AFP2, capable of being isolated from Sinapis seed.
- 11 11 A pure protein At-AFP1, capable of being isolated from Arabidopsis seed.
- 15 12 A pure protein Dm-AMP1, capable of being isolated from Dahlia seed.
- 13 13 A pure protein Dm-AMP2, capable of being isolated from Dahlia seed.
- 20 14 A pure protein Cb-AMP1, capable of being isolated from Cnicus seed. 1-19.
- 15 15 A pure protein Cb-AMP2, capable of being isolated from Cnicus seed. 1-19.
- 25 16 A pure protein Lc-AFP, capable of being isolated from Lathyrus seed.
- 17 17 A pure protein Ct-AMP1, capable of being isolated from Clitoria seed.
- 30 18 A pure protein Ct-AMP2, capable of being isolated from Clitoria seed.

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- 19 A protein as claimed in any of claims 1 to 18  
which is synthetic.
- 5 20 A recombinant DNA sequence encoding a protein  
as claimed in any of claims 1-19.
- 21 A DNA sequence as claimed in claim 20 which is  
a cDNA.
- 10 22 A DNA sequence as claimed in claim 20 which is  
genomic DNA.
- 15 23 A DNA sequence as claimed in claim 22 which is  
isolated from a plant genome.
- 24 A DNA sequence as claimed in claim 23 which  
includes a promoter sequence.
- 20 25 A promoter sequence obtainable from a gene  
encoding a protein as claimed in any of claims  
1-19.
- 25 26 A vector containing a DNA sequence as claimed  
in claim 20.
- 27 A biological system including recombinant DNA  
as claimed in claim 20 such that the encoded  
protein is expressed.
- 30 28 A biological system as claimed in claim 27  
which is a micro-organism.
- 29 A biological system as claimed in claim 27  
which is a plant.

- 30 An antimicrobial protein produced by  
expression of recombinant DNA as claimed in  
claim 20.
- 5 31 A plant transformed with recombinant DNA as  
claimed in claim 20.
- 10 32 A plant as claimed in claim 26 in which the  
recombinant DNA encodes at least one of the  
following proteins: Rs-AFP1, Rs-AFP2,  
Rs-nsLTP, Bn-AFP1, Bn-AFP2, Br-AFP1, Br-AFP2,  
Sa-AFP1, Sa-AFP2, At-AFP1, Dm-AMP1, Dm-AMP2,  
Cb-AMP1, Cb-AMP2, Lc-AFP, Ct-AMP1, Ct-AMP2.
- 15 33 Seeds and progeny of a plant as claimed in  
claim 31 or claim 32.
- 20 34 A composition containing at least one of the  
proteins as claimed in any of claims 1 to 19  
or claim 30.
- 25 35 A process of combating fungi or bacteria which  
comprises exposure to a protein or composition  
as claimed in any of claims 1 to 19, claim 30  
or claim 34.
- 30 36 A process of combating fungi or bacteria which  
comprises exposure to a protein encoded by pea  
gene pI39, by pea gene pI230, by cowpea gene  
pSAS10, or by potato gene pI322.
- 37 37 A process of combating fungi or bacteria which  
comprises exposure to SI $\alpha$ 2,  $\gamma$ -l-purothionin,  
or another  $\alpha$ -amylase inhibitor protein.

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- 5 38 An extraction process for producing a protein as claimed in any of claims 1 to 19 or claim 30 from organic material containing them which comprises submitting the organic material to maceration and solvent extraction.
- 10 39 An extraction process as claimed in claim 38 where the protein is subsequently purified by centrifugation, chromatography and dialysis.
- 15 40 An extraction process as claimed in either claim 38 or claim 39 where the organic matter comprises seeds of Raphanus, Brassica, Sinapis, Arabidopsis, Dahlia, Cnicus, Lathyrus or Clitoria.
- 20 41 An extraction process as claimed in either claim 38 or claim 39 where the organic matter comprises a biological system as claimed in claim 27.
- 25 42 A process for producing a protein as claimed in any of claims 1 to 19 which comprises chemical synthesis of the protein.
- 43 A process for producing a protein as claimed in any of claims 1 to 19 which comprises expression of a recombinant DNA sequence encoding the protein.

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